

3. BEHIND THE BOTTOM LINE

Oil and Natural Gas Production

Higher Natural Gas Prices and Increased Production Offset by Lower Oil Prices

Worldwide net income from the FRS companies' oil and gas production operations totaled \$32.2 billion in 2001, a 20-percent decline from net income in 2000 (Table 8). Excluding the effects of unusual items, the decline was a less steep 11 percent. The decline in upstream income was a bit steeper for foreign operations than for U.S. operations. Although income was down, as was profitability, the return on investment in oil and gas production was still at a high level in 2001 (Figure 11). The breakdown of revenues, costs, prices, and production in Tables 8 and 9 allow a detailed review of the sources of the decline in upstream earnings.

In U.S. upstream operations, oil and gas revenues were flat at \$79.0 billion. The FRS companies' U.S. oil production was up 8 percent (Table 9) between 2000 and 2001, with increases from both onshore and offshore locales (Figure 12a). The uptick in onshore oil production was the first since the 1980's. Domestic natural gas production continued to grow, rising by 6 percent. Also, natural gas prices realized by the FRS companies in their U.S. upstream operations were 10 percent higher (equivalent to about \$2 per barrel). These developments were favorable to upstream earnings growth, but were just offset by the \$4.72-per-barrel decline in the FRS companies' U.S. oil price, resulting in zero revenue growth.

In foreign upstream operations, revenues of \$62.7 billion in 2001 were down 8 percent from the prior year. Since oil is a larger share of the FRS companies' foreign upstream production than their U.S. upstream production -- 61 percent vs. 46 percent, respectively, in 2001 -- foreign revenues were more adversely affected by the oil price decline in 2001.

Foreign oil production of the FRS companies was up 8 percent between 2000 and 2001, with greater production from Asia-Pacific fields accounting for three-quarters of the increase and increased Canadian oil production accounting for the balance. (For a discussion of changes in the structure of worldwide oil production, see the Highlight entitled "Top Oil Corporations Nearly Double Share of World Oil Production.") Foreign natural gas production was up 6 percent over the same period, with Canadian operations accounting for 80 percent of the growth. The FRS companies' increased Canadian natural gas production in large part reflects their heavy acquisition of Canadian producers and properties in recent years. Producing fields in South America and Africa also yielded increased natural gas production.

On the cost side, U.S. upstream operating expenses were up 12 percent and a less steep 3 percent abroad. Most of the increase in operating expenses came from writedowns of oil and natural gas asset values in 2001. Writedowns of assets are required under financial accounting standards when the value of an asset carried on the balance sheet exceeds estimated future cash flows or exceeds the market value of the asset. (Note that asset values on the books cannot be increased if the converse is true.) Most oil and gas

producers wrote down upstream asset values because estimated cash flows dropped based on the decline in end-of-year oil and gas prices between 2002 and 2001.

**Table 8. Income Components and Financial Ratios in Oil and Natural Gas Production
for FRS Companies, 2000-2001**
(Billion Dollars)

Components of Income and Financial Ratios	Worldwide		United States		Foreign	
	2000	2001	2000	2001	2000	2001
Oil and Natural Gas Revenues						
Oil	NA	NA	38.3	31.6	NA	NA
Natural Gas	NA	NA	40.7	47.4	NA	NA
Total Revenues	147.4	141.7	79.0	79.0	68.4	62.7
Expenses						
Depreciation, Depletion, and Amortization	23.9	32.2	13.1	20.0	10.8	12.1
Lifting Costs	21.8	24.7	11.0	12.9	10.7	11.8
Exploration Expenses	5.4	6.3	3.2	3.0	2.3	3.3
General and Administrative Expenses	2.3	2.7	1.3	1.9	1.0	0.8
Raw Material Purchases	27.9	23.2	17.0	16.9	10.9	6.3
Other Costs (Revenues)	3.2	2.5	2.2	-1.0	1.0	3.5
Total Operating Expenses	84.3	91.2	47.6	53.3	36.6	37.9
Operating Income	63.1	50.5	31.4	25.7	31.8	24.8
Other Income (Expense) ^a	5.5	4.8	1.4	1.6	4.0	3.2
Income Tax Expense	28.3	23.1	11.0	9.6	17.3	13.4
Net Income	40.3	32.2	21.9	17.6	18.5	14.6
Less Unusual Items	-0.2	-4.5	-0.2	-3.0	0.0	-1.5
Net Income, Excluding Unusual Items	40.5	36.7	22.0	20.6	18.5	16.1
Unit Values (Dollars Per Barrel of Production COE) ^b						
Direct Lifting Costs (Excluding Taxes)	3.10	3.49	3.06	3.53	3.14	3.45
Production Taxes	0.92	0.78	0.95	0.85	0.90	0.70
Ratios (Percent)						
Return on Investment ^c	17.4	12.2	17.7	13.1	17.1	11.2
Effective Tax Rate ^d	41.2	41.7	33.4	35.3	48.4	48.0

^aEarnings of unconsolidated affiliates and gain (loss) on disposition of assets.

^bCOE = Crude oil equivalent. Dry natural gas was converted at 0.178 barrels of oil per thousand cubic feet.

^cNet Income divided by net investment in place (Net investment in place = net property, plant, and equipment plus investments and advances).

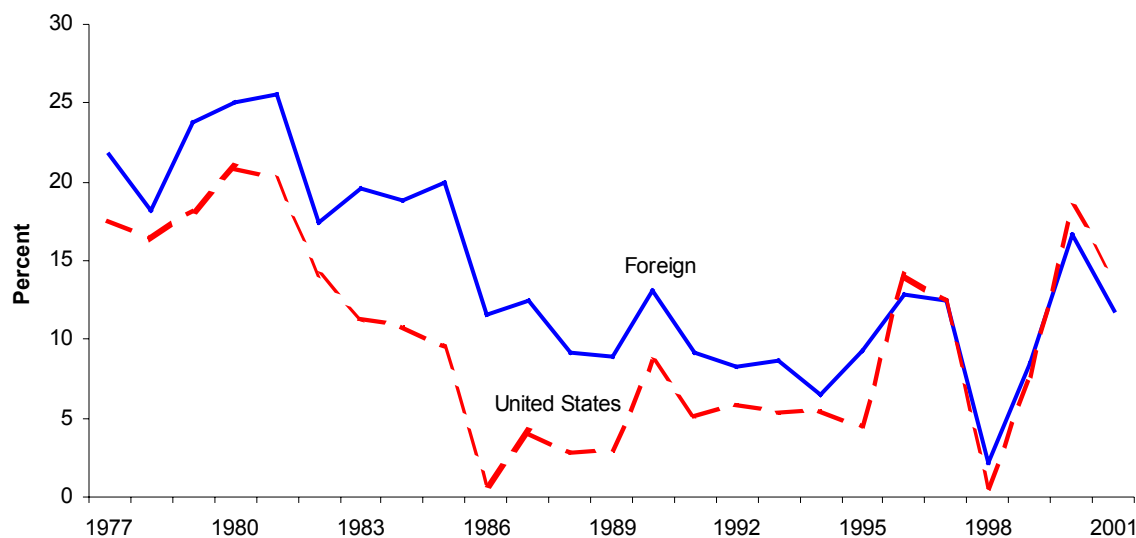
^dIncome tax expense divided by pretax income.

NA = Not available.

Note: Sum of components may not equal total due to independent rounding.

Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

Figure 11. Return on Investment in U.S. and Foreign Oil and Natural Gas Production for FRS Companies, 1977-2001



Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

Table 9. Average Prices, Sales, and Production in Oil and Gas for FRS Companies, 2000-2001

Prices, Sales, and Production	2000	2001	Percent Change 2000-2001
Worldwide Oil and Gas Production ^a			
Crude Oil and NGL (Million Barrels)	2,864	3,087	7.8
Dry Natural Gas (Billion Cubic Feet)	14,306	15,148	5.9
Total (Million Barrels COE) ^b	5,411	5,784	6.9
Domestic Oil and Gas Production ^a			
Crude Oil and NGL (Million Barrels)	1,268	1,363	7.5
Dry Natural Gas (Billion Cubic Feet)	8,340	8,838	6.0
Total (Million Barrels COE) ^b	2,752	2,936	6.7
Domestic Oil and Gas Sales Volumes			
Crude Oil and NGL (Million Barrels)	1,484	1,498	0.9
Dry Natural Gas (Billion Cubic Feet)	11,348	11,876	4.7
Total (Million Barrels COE) ^b	3,503	3,612	3.1
Domestic Production Average Sales Prices			
Crude Oil and NGL (Dollars Per Barrel)	25.83	21.11	-18.3
Dry Natural Gas (Dollars Per Thousand Cubic Feet)	3.59	3.96	10.4
Composite (Dollars Per Barrel COE) ^b	22.56	21.79	-3.4
Foreign Oil and Gas Production ^a			
Crude Oil and NGL (Million Barrels)	1,596	1,724	8.0
Dry Natural Gas (Billion Cubic Feet)	5,966	6,310	5.8
Total (Million Barrels COE) ^b	2,658	2,847	7.1
Foreign Production Average Sales Prices			
Crude Oil and NGL (Dollars Per Barrel)	26.34	22.04	-16.3
Dry Natural Gas (Dollars Per Thousand Cubic Feet)	2.59	2.91	12.5
Canada	3.60	3.63	0.7
OECD Europe	2.63	3.18	21.1
Other Foreign	2.18	2.25	3.2
Composite (Dollars Per Barrel COE) ^b	21.95	19.97	-9.0

^aProduction is on a net ownership basis. Sales are domestic production segment sales. See Appendix A for discussion of FRS reporting conventions.

^bCOE = Crude oil equivalent. Dry natural gas was converted at 0.178 barrels of crude oil per thousand cubic feet.

Sources: Energy Information Administration, Form EIA-28 (Financial Reporting System). Foreign production segment per unit sales values were compiled from information in FRS companies' filings of Securities and Exchange Commission Form 10-K, annual reports to shareholders, and supplements to annual reports.

Figure 12a. Oil Production for FRS Companies, 1981-2001

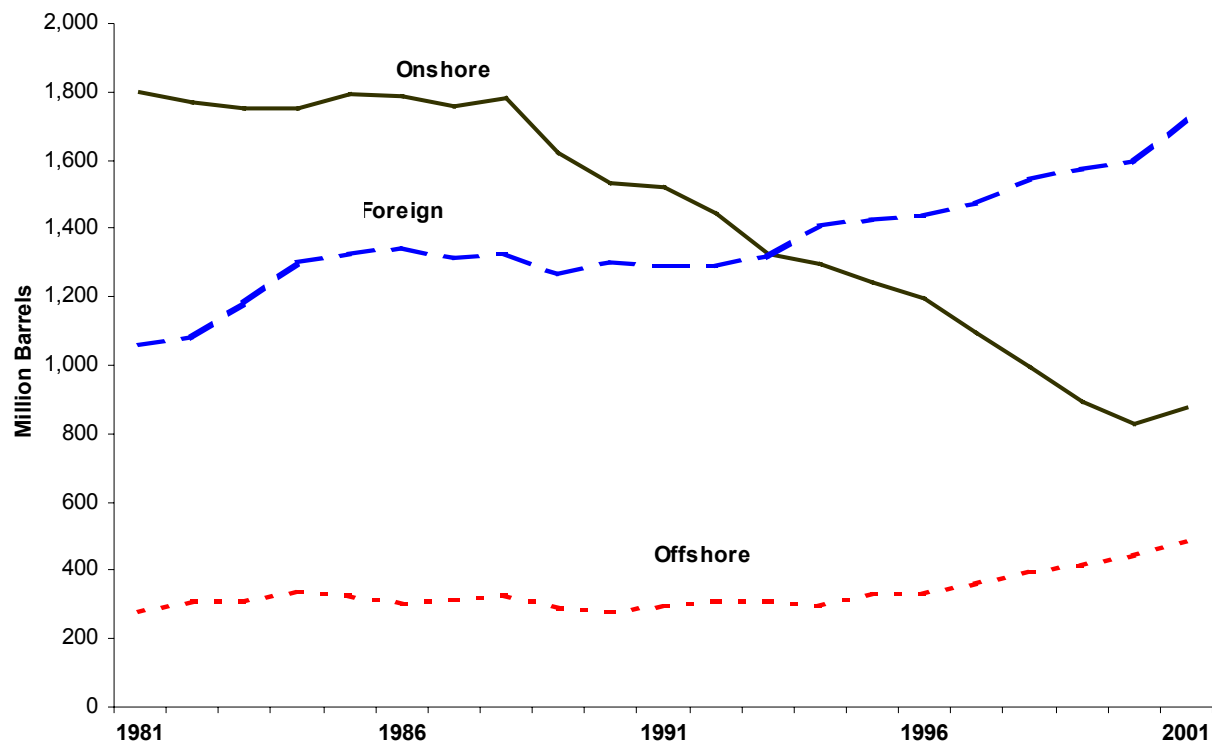
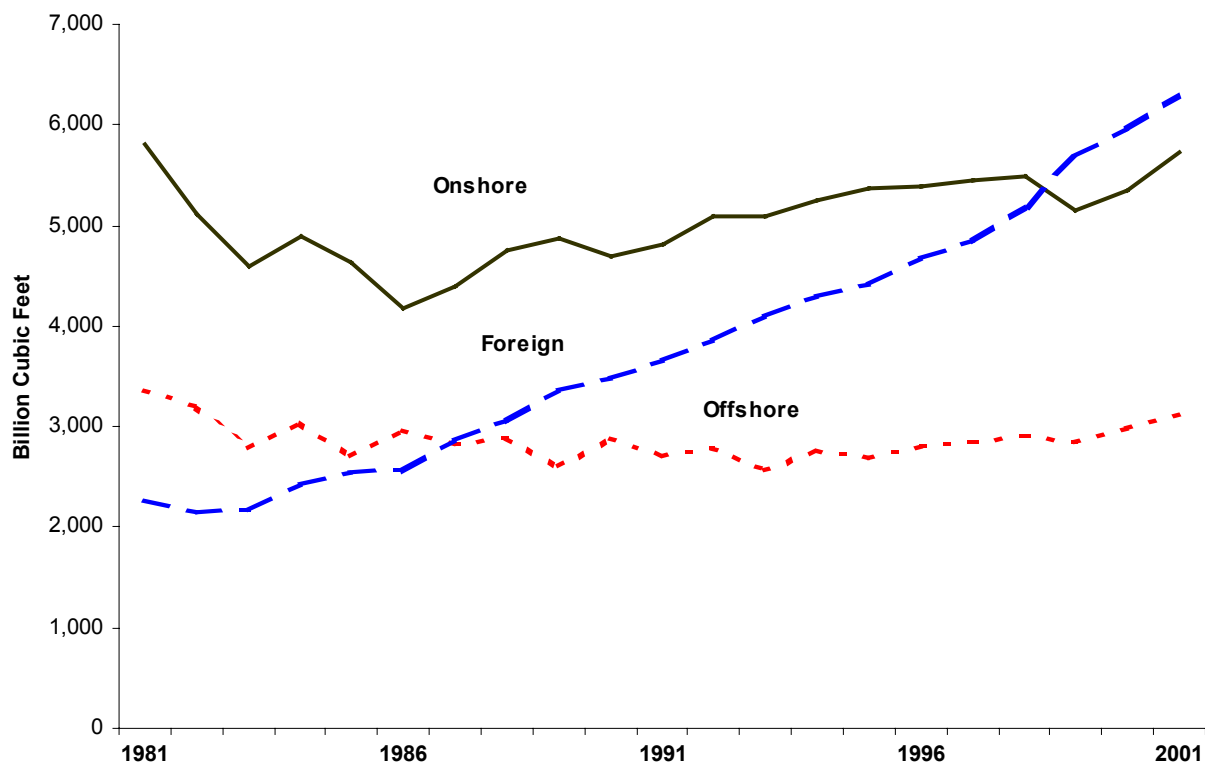


Figure 12b. Natural Gas Production for FRS Companies, 1981-2001



Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

Top Oil Corporations Nearly Double Share of World Oil Production

An increased role for companies that are publicly traded and not wholly state-owned was the most notable change in the structure of the top producers in the international oil market between 1992 and 2001.^a These companies produced 21 percent of the world's oil in 2001, up from 11 percent in 1992, while increasing their number in the group from six to nine (Table 10). One cause of this larger role for publicly traded companies was several mergers (involving almost all of them) that have occurred in the last few years.^b The largest of these mergers, in 1999, created Exxon Mobil, the fifth-largest producer of oil in the world in 2001. Its two predecessors were both members of the top 20 in 1992, with Exxon tenth and Mobil seventeenth. Other recent mergers involving 1992 top-20 companies include BP's merger with Amoco and subsequently with Atlantic Richfield, and Chevron's merger with Texaco.^c The merger of Total and Petrofina to form Totalfina and the latter's merger with Elf Aquitaine to form TotalFinaElf combined three companies that were not in the 1992 top 20. These combinations resulted in larger publicly traded companies that generally had higher ranks in the top-20 list in 2001 than their predecessors did in 1992.

Another cause of the increased role for publicly traded companies was the privatization of formerly state-owned companies during the 1990's. The Russian government, which has dramatically reduced its role in the economy, privatized YUKOS and, to a large extent, LUKoil.^d In addition, Elf Aquitaine was privatized in 1993, before being acquired by Totalfina, while PetroChina (formerly China National Petroleum) and Petroleo Brasileiro (Petrobras) were partially privatized during the 1990's. Including partially privatized companies raises the publicly traded companies' share to 21 percent in 2001.

The other changes in the top-20 list were the entrances of Iraq National Oil (INOC) and Petrobras and the exit of Sonatrach. INOC was not on the list in 1992 because its production had been reduced dramatically by the Gulf war and an embargo on Iraqi exports. Petrobras, which produced 97 percent of Brazil's oil in 2001, was able to move onto the list because of the swell in Brazilian production between 1992 and 2001, which more than doubled over the period. Sonatrach dropped off the list because its production was essentially flat during the period, while publicly traded companies were increasing their investment in Algerian oil production.

Sonatrach's exit points to another change in the top-20 list: a large increase in the amount of production required for inclusion in the top 20. The production of the last company on the list in 2001 was 30 percent higher than it was in 1992. The combination of this increase and the only 3-percent increase in production by the largest producer compressed the list, with the ratio of the production of the top company to the bottom company declining from 11.7:1 to 9.3:1 over the period.

The structure of an industry can be measured by two statistics, concentration ratios and the Herfindahl-Hirschman Index (HHI). They both attempt to measure the size and distribution of the companies in a market. To calculate these statistics, the largest companies in a market are first ordered from biggest to smallest in terms of market share. A concentration ratio is the sum of the market-share percentages of the top companies. The HHI is the sum of squares of the shares of the top companies.^e The Department of Justice and the Federal Trade Commission use the HHI when considering mergers between companies. They define an industry with an HHI below 1,000 as unconcentrated, one with an HHI between 1,000 and 1,800 as moderately concentrated, and one with an HHI more than 1,800 as highly concentrated.^f

The HHI (20 firm) for the international oil market was 282 in 2001, indicating an unconcentrated industry and declining slightly in value from 1992 (Table 10). The decline in Saudi Arabian Oil's share

was by far the largest contributor to this decline. The 4-firm and 8-firm concentration ratios also declined slightly because of the declining shares of the top 4 and top 8 firms. However, the 20-firm ratio increased slightly, indicating that the concentration of the smaller of the top-20 firms increased enough to more than offset the declining concentration of the larger of the firms.

^a “Oil” often is defined to include three liquid hydrocarbons, crude oil, lease condensate, and natural gas liquids. However, lease condensate and particularly natural gas liquids, which are produced in much smaller amounts than crude oil, may not be included as part of oil production and reserves by some international data sources. This inconsistency complicates the analysis of international oil production and reserves, including the one here, and to some extent limits their usefulness.

^b Royal Dutch/Shell was the only not-state-owned top-20 company in 1992 that has not been involved in a large merger since then.

^c The combined 2001 production of Conoco and Phillips Petroleum, merged in 2002, would have placed twentieth on the list had the merger been completed in 2001 and would have magnified the trend away from state-owned companies.

^d The State still owns 13.5 percent of LUKoil.

^e Concentration ratios can range up to 100; at that value the specified firms would include all the firms in the industry. HHI’s can range up to 10,000; at that value there would be only one firm in the industry.

^f U.S. Department of Justice and U.S. Federal Trade Commission, Horizontal Merger Guidelines, revised April 8, 1997, § 1.51.

Asset writedowns were also taken by companies recently involved in mergers accounted for as a pooling of interests. A surviving company involved in a merger accounted for by the pooling-of-interests method transfers the value of assets and liabilities from the acquired company’s balance sheet to its own. When the surviving company sorts the acquired assets for retention or sale, the company will write down the value of those assets destined for sale to their market values. In 2001, the FRS companies charged \$5.3 billion against pre-tax income for asset writedowns in U.S. oil and gas production operations and \$2.7 billion in foreign upstream operations. In 2000, the comparable amounts were \$0.4 billion in both U.S. and foreign operations. Asset writedowns are usually included in depreciation, depletion, and amortization (DD&A). Higher expenses for DD&A were the main source of increased operating costs in the FRS companies’ upstream operations between 2000 and 2001.

Lifting costs also increased by \$1.9 billion in the United States and \$1.1 billion abroad. Lifting costs are the costs of extracting oil and gas. They are largely composed of expenses for operation, maintenance, and repair of producing wells and associated field equipment. Lifting costs increased, in part, because the FRS companies increased their oil and gas production (Table 9). Lifting costs per barrel of production were also higher (Figure 13) which contributed to increased operating expenses in 2001. The next section of this chapter reviews lifting costs.

Other cost items that were higher in 2001 included general and administrative expenses in the United States, up \$0.6 billion, and exploration expenses abroad, up \$1.0 billion.

Direct Lifting Costs Increase in Most Regions

While both domestic and foreign direct lifting costs increased in 2001 for the FRS companies, foreign costs increased less than domestic costs (Table 11). Lifting costs (production costs) are the out-of-pocket costs per barrel of oil and natural gas produced (measured on a barrel-of-oil equivalent basis) to operate and maintain wells and related equipment and facilities after hydrocarbons (both crude oil and natural gas) have been found, acquired, and developed for production. Total lifting costs are direct lifting costs plus production taxes. Taking a clue from the large increase in U.S. onshore total lifting costs in 2001, it is probable that U.S. onshore direct lifting costs increased even more, because production taxes, which are levied mostly against onshore production, declined. The long-term trend in lifting costs remains downward, but 2001 may prove to be a pivotal year, because it is the first since

Table 10. Worldwide Oil Production of 20 Largest Producers, 1992 and 2001
(Million Barrels)

1992			2001		
Company	Production	Percent of Worldwide Total	Company	Production	Percent of Worldwide Total
Saudi Arabian Oil	2,970	12.4	Saudi Arabian Oil	3,056	11.2
National Iranian Oil	1,261	5.3	National Iranian Oil	1,385	5.1
China National Petroleum	1,035	4.3	Petroleos Mexicanos	1,299	4.8
Petroleos Mexicanos	1,012	4.2	Petroleos de Venezuela	1,193	4.4
Petroleos de Venezuela	865	3.6	Exxon Mobil (United States)	899	3.3
Royal Dutch/Shell			Royal Dutch/Shell		
(Netherlands/United Kingdom)	783	3.3	(Netherlands/United Kingdom)	810	3.0
Nigerian National Petroleum	694	2.9	Nigerian National Petroleum	767	2.8
Abu Dhabi National Oil	692	2.9	PetroChina	764	2.8
Exxon (United States)	580	2.4	Kuwait Petroleum	745	2.7
Pertamina (Indonesia)	557	2.3	Iraq National Oil	715	2.6
National Oil (Libya)	545	2.3	ChevronTexaco (United States)	714	2.6
British Petroleum					
(United Kingdom)	425	1.8	BP plc (United Kingdom)	677	2.5
LUKoil (Russia)	415	1.7	LUKoil (Russia)	570	2.1
Kuwait Petroleum	321	1.3	Abu Dhabi National Oil	568	2.1
Chevron (United States)	301	1.3	TotalFinaElf (France)	531	2.0
Sonatrach (Algeria)	282	1.2	National Oil (Libya)	496	1.8
Mobil (United States)	278	1.2	Petroleo Brasileiro (Brazil)	486	1.8
YUKOS (Russia)*	272	1.1	Pertamina (Indonesia)	438	1.6
Atlantic Richfield (United States)	270	1.1	YUKOS (Russia)	362	1.3
Ministry of Petroleum & Minerals (Oman)	253	1.1	Petroleum Development Oman	330	1.2
Top 20 Total	13,811	57.5	Top 20 Total	16,802	61.8
Publicly Traded Total	2,637	11.0	Publicly Traded Total	5,813	21.4
Worldwide Total	24,006		Worldwide Total	27,190	

Concentration Measures

Herfindahl-Hirschman Index (20 firm)	290	Herfindahl-Hirschman Index (20 firm)	282
Concentration Ratio (4 firm)	26.2	Concentration Ratio (4 firm)	25.5
Concentration Ratio (8 firm)	38.8	Concentration Ratio (8 firm)	37.4
Concentration Ratio (20 firm)	57.5	Concentration Ratio (20 firm)	61.8

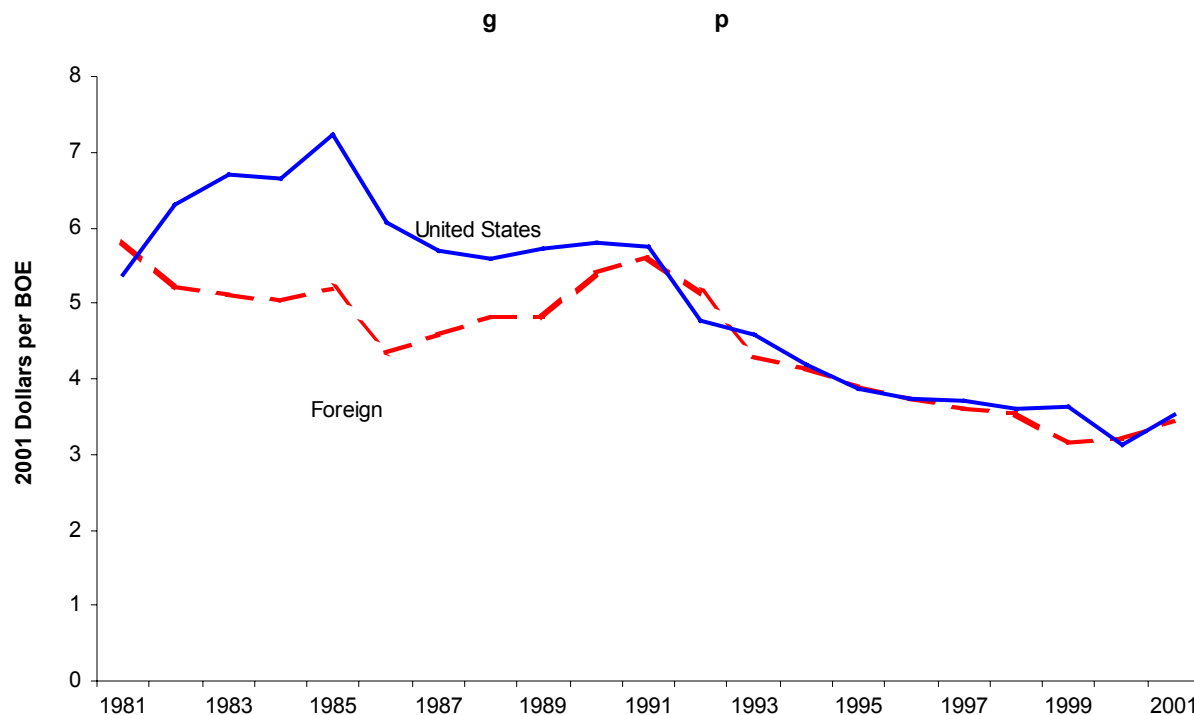
*Production is for 1994.

Notes: Publicly traded companies are denoted by underlines. LUKoil is still 13.5-percent state-owned. Because lease condensate and natural gas liquids (NGLs) are not consistently included in reported or estimated international oil production of international oil and gas companies, the production numbers above may or may not include them. For details, see sources below.

1990 that foreign and domestic direct lifting costs both increased (Figure 13). More likely, 2001, like 1990, will only be a temporary departure from the downward trend.

One cause of higher direct lifting costs can be launching new projects, such as bringing new production online or initiating enhanced recovery programs, which often have higher costs initially. In the U.S. onshore in 2001, there were several FRS companies reporting new projects. For example, Exxon Mobil, which is the largest resource owner in the Prudhoe Bay field in Alaska, began enhanced recovery

Figure 13. Direct Oil and Natural Gas Lifting Costs for FRS Companies, 1981-2001



Note: Direct lifting costs are the costs of extracting oil and gas, excluding production taxes.

BOE = Barrels of crude oil equivalent.

Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

projects at the Pt. McIntyre and Eileen West End fields, and the Borealis field (partly owned by Exxon Mobil) began producing in 2001.³⁷ BP³⁸ brought the Northwest, Northstar, and (along with Exxon Mobil) Borealis fields (as well as the Meltwater satellite development project) online in Alaska in the second half of the year.³⁹ In addition, BP initiated production at the Martin No. 1 well in the Tuscaloosa Trend and began a program to aggressively optimize well operating conditions at the Hugoton field in Western Kansas to stem production declines there. Occidental Petroleum used added compression and other aggressive reservoir exploitation programs to accelerate natural gas production at Elk Hills and take advantage of California's high price for natural gas during 2001.⁴⁰

Total lifting costs outside the United States increased somewhat in 2001 (Table 11). However, the Middle East showed a large increase while the Other Western Hemisphere (Latin America) showed a large decrease. The cause of decreased costs in Latin America was a decline in production taxes, which historically have been more variable than production costs. Nevertheless, production declines can be a cause of higher direct lifting costs, which require fixed costs to be spread over less output. Production by the FRS companies in the Middle East declined in 2001, in part because OPEC production cuts were likely passed on to the FRS companies operating in the Middle East. The production decline may have contributed to the increased lifting costs there.

In the Former Soviet Union and Eastern Europe, direct lifting costs decreased substantially from the prior year for the FRS companies in 2001. However, more than half of this decline was offset by an increase in production taxes, leaving a more modest decline in total lifting costs. While production costs can increase when output declines, because fixed costs are spread over less output, the opposite effect can happen when production increases at established projects. This may have been the case in the

Former Soviet Union and Eastern Europe, where several FRS companies reported increased production in 2001. In the Caspian Sea area, Exxon Mobil increased production at the Tengiz field in Kazakhstan and at the Megastructure development in the Azerbaijan sector of the Sea itself.⁴¹ Exxon Mobil and its predecessors have been involved in these two producing fields for several years.⁴² Also in the Caspian, BP increased production at the Chirag 1 platform in the Azeri-Chirag-Gunashli fields in Azerbaijan, which produced its first oil in 1997.⁴³

Table 11. Lifting Costs by Region for FRS Companies, 2000-2001
(Dollars Per Barrel of Oil Equivalent)

Region	Direct Lifting Costs			Production Taxes			Total		
	2000	2001	Percent Change	2000	2001	Percent Change	2000	2001	Percent Change
United States									
Onshore	--	--	--	--	--	--	4.64	5.19	11.9
Offshore	--	--	--	--	--	--	2.85	2.93	2.8
Total United States	3.06	3.53	15.6	0.95	0.85	-9.8	4.00	4.39	9.6
Foreign									
Canada	3.59	3.92	9.2	0.30	0.22	-26.7	3.89	4.14	6.4
OECD Europe	3.40	3.51	3.3	0.53	0.66	24.9	3.92	4.16	6.2
Former Soviet Union and Eastern Europe	4.70	3.85	-18.1	0.45	0.89	100.3	5.15	4.74	-7.8
Africa	3.26	3.58	9.8	1.55	1.20	-23.0	4.81	4.77	-0.8
Middle East	1.27	3.05	139.5	1.54	0.41	-73.3	2.81	3.46	22.9
Other Eastern Hemisphere	2.77	3.21	16.1	1.23	0.88	-28.7	4.00	4.09	2.3
Other Western Hemisphere	2.69	2.75	2.3	1.53	0.66	-57.2	4.22	3.41	-19.3
Total Foreign	3.14	3.45	9.7	0.90	0.70	-22.3	4.04	4.14	2.6
Worldwide Total	3.10	3.49	12.7	0.92	0.78	-15.8	4.02	4.27	6.1

-- = Data not available.

Note: Sum of components may not add to total due to independent rounding.

Source: Energy Information Administration, Form EIA-28, (Financial Reporting System).

U.S. Refining and Marketing

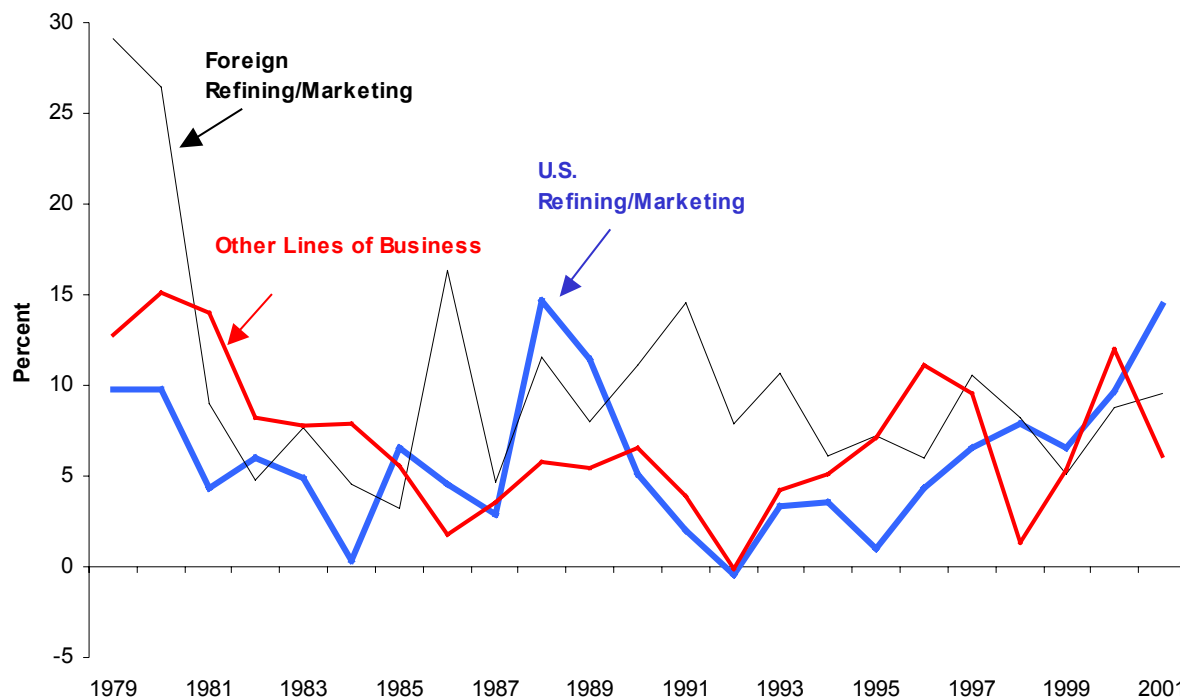
Profitability of U.S. Refining/Marketing Operations Second Highest in Survey History

U.S. refining and marketing operations of the Financial Reporting System (FRS) companies achieved a profit rate (measured by return on investment)⁴⁴ in 2001 that fell just short of⁴⁵ the highest level in the history of the FRS data survey (Figure 14). The period 1996 through 2001 marks a sort of “golden age” of U.S. refining and marketing as profitability has increased each year (with the exception of 1999), and been comparable to other lines of business of the FRS companies (including 1999).

Insight into this recent, profitable era of the FRS companies' domestic refining and marketing operations can be provided by examining the net refined product margin (net margin), which is highly correlated with profitability.⁴⁶ The net margin is the gross margin (refined product revenues minus purchases of raw materials input to refining and refined product purchases) minus out-of-pocket operating costs per barrel of refined product sold. The net margin measures before-tax cash earnings from the production and sale of refined products.⁴⁷ At \$2.72 per barrel, the net margin of 2001 was the highest (after

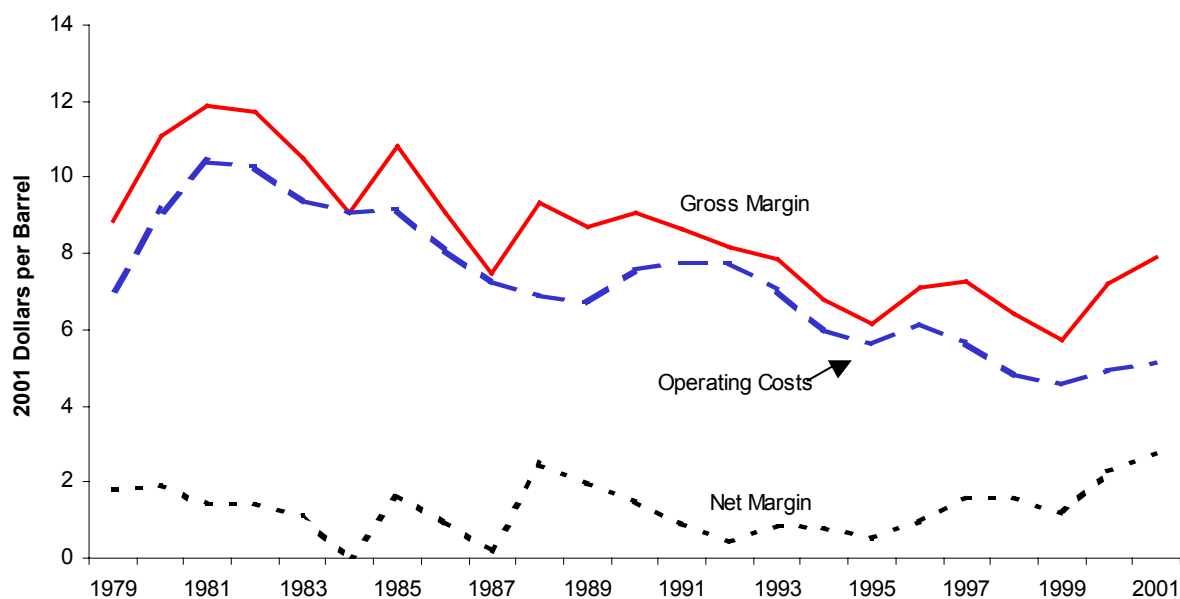
adjusting for inflation) in the history of the FRS data survey, exceeding the previous all-time high of \$2.43 (in 2001 dollars) that was set in 1988 (Figure 15).

Figure 14. Return on Investment in U.S. and Foreign Refining/Marketing, and Other Lines of Business for FRS Companies, 1979-2001



Source: Energy Information Administration, Form EIA-28 (Financial Reporting System)

Figure 15. U.S. Refined Product Margins and Costs per Barrel of Petroleum Product Sold for FRS Companies, 1979-2001



Note: The gross margin is refined product revenues less raw material cost and product purchases divided by refined product sales volume.

Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

Product Sales Revenue Falls As Product Prices Decline

Revenues from petroleum product sales declined 6 percent between 2000 and 2001, but were more than offset by a slightly larger decrease in operating expenses and a 12-percent increase in revenue from other sources (e.g., raw materials sales and transportation revenues) (Table 12).⁴⁸ Excluding unusual items,⁴⁹ net income increased 48 percent, rising from \$8.7 billion in 2000 to \$12.8 billion in 2001.

Table 12. U.S. and Foreign Refining/Marketing Financial Items for FRS Companies, 2000-2001
(Million Dollars)

	2000	2001	Percent Change 2000 - 2001
Domestic Refining/Marketing Operations			
Refined Product Sales Revenue	310,661	291,609	-6.1
Other Revenue ^a	17,236	19,301	12.0
Operating Expense ^{a, b}	317,137	294,536	-7.1
Operating Income ^b	10,760	16,374	52.2
Net Income, excluding unusual items	8,657	12,829	48.2
Unusual items	-998	-878	
Net Income	7,659	11,951	56.0
Foreign Refining/Marketing Operations			
Refined Product Sales Revenue	147,597	142,949	-3.1
Other Revenue ^a	4,754	14,249	199.7
Operating Expense ^{a, b}	147,956	152,420	3.0
Operating Income ^b	4,395	4,778	8.7
Net Income, excluding unusual items	3,065	3,239	5.7
Unusual items	-165	-124	
Net Income	2,900	3,115	7.4

^aRaw materials revenues are netted against total operating expense.

^bExcludes unusual items.

Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

Part of the reason for the decline in sales revenues from domestic refining/marketing between 2000 and 2001 was that petroleum product prices fell 11 percent over that period (Table 13). In particular, the price of motor gasoline fell 10 percent, distillate fell 13 percent, and other products fell an average of 13 percent. Essentially flat economic growth⁵⁰ and warmer winter weather (5 percent fewer heating degree-days⁵¹) in 2001 compared to 2000 exerted little upward pressure on prices. Further, higher levels of industry-wide petroleum product stocks (Figure 16) in 2001 compared to 2000 exerted downward pressure on petroleum product prices. Lower industry-wide stocks of motor gasoline over the first part of 2001 (compared to 2000, Figure 17) served to ease the downward pressure on motor gasoline relative to other products. Gasoline prices also benefited from price spikes in April and May in some parts of the country due to refinery fires.

Higher Product Sales Ameliorate Effect of Lower Product Prices

The downward pressure on revenues exerted by the lower prices received by the FRS companies for petroleum products in 2001 relative to 2000 was somewhat abated by higher product sales (Table 14).

The FRS companies' sales of motor gasoline increased 6 percent, heating oil and diesel fuel sales rose 4 percent, and sales of other products increased 9 percent.

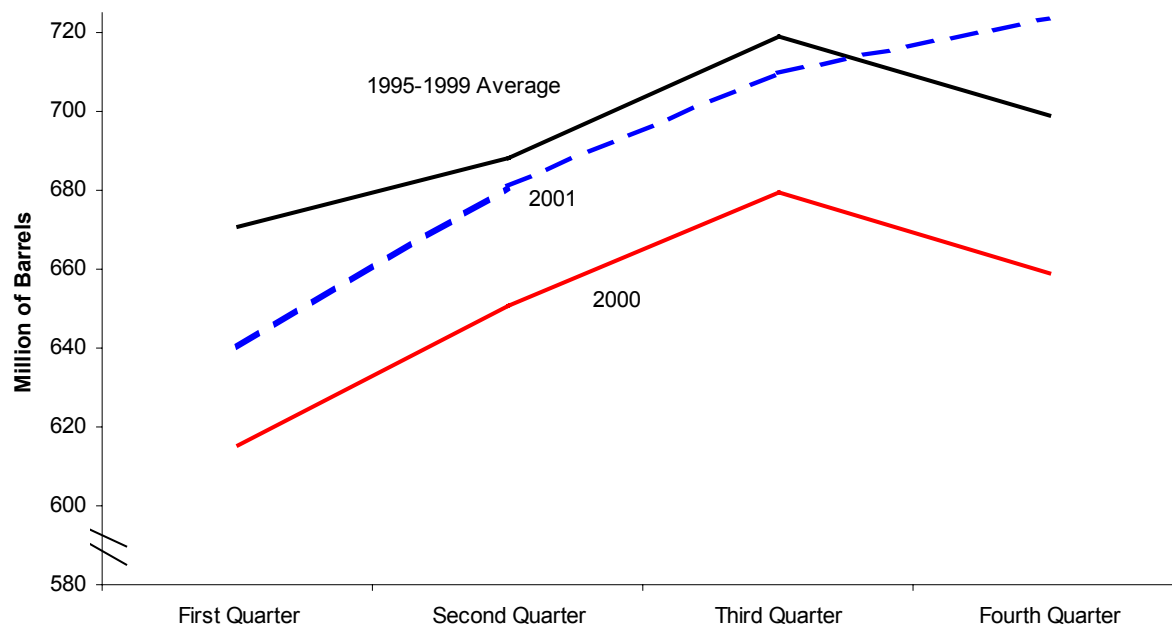
Table 13. Sales, Prices, Costs, and Margins in U.S. Refining/Marketing for FRS Companies, 2000-2001

	2000	2001	Percent Change 2000-2001
Refined Product Sales (Million Barrels per Day)	22.3	23.6	5.8
(Nominal Dollars per Barrel)			
Gasoline Average Price	41.15	36.96	-10.2
Distillate Average Price	37.65	32.96	-12.5
Other Products Average Price	30.09	26.30	-12.6
All Refined Products Average Price	38.19	33.88	-11.3
Less: Raw Materials Costs and Product Purchases	31.13	26.04	-16.4
Equals: Gross Refining Margin	7.06	7.85	11.2
Less: Direct Operating Costs	4.83	5.13	6.1
Equals: Net Refining Margin ^a	2.23	2.72	21.9
Reseller/wholesaler spread (dealer price - wholesale price)	4.94	3.05	-38.2
Retailer spread (company-operated price - dealer price)	1.69	3.16	86.9

^aSee Appendix B, Table B32, for the components to calculate the refined product margin.

Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

Figure 16. Quarterly U.S. Commercial Petroleum Product Stocks, 1995-1999, 2000, and 2001

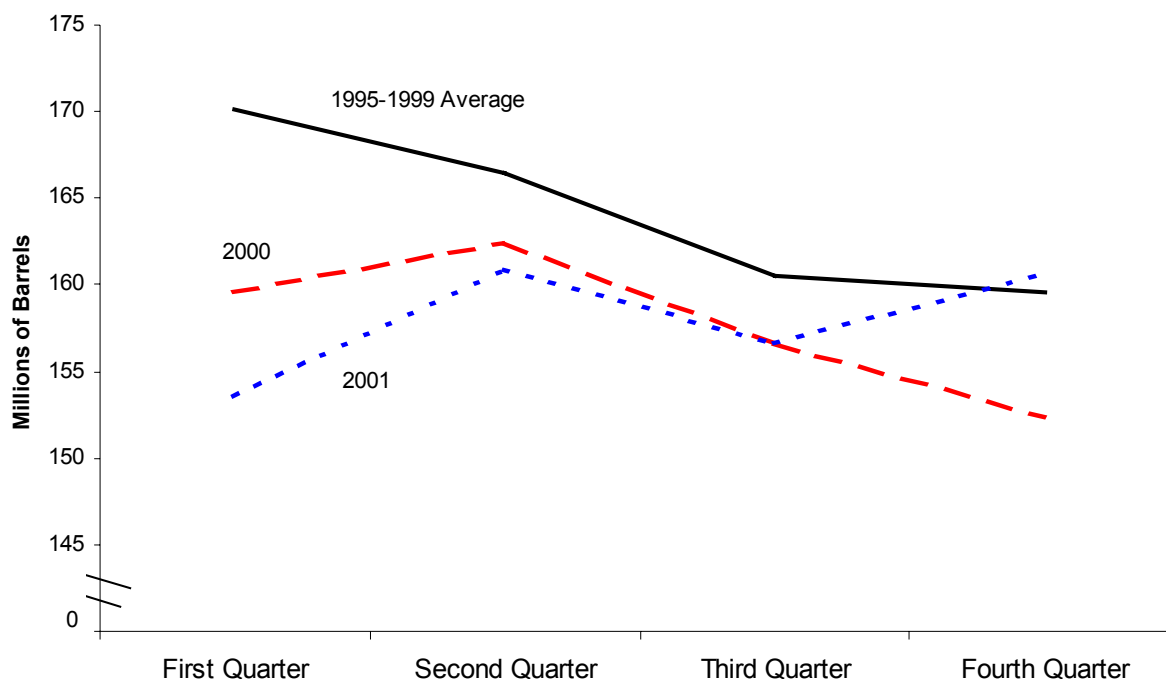


Source: Energy Information Administration, Petroleum Supply Monthly, DOE/EIA-0109 (Various issues, Washington, DC), Table 51.

Refinery capacity of the FRS companies continued to grow slowly, increasing about 1 percent between 2000 and 2001 (Table 15) after increasing slightly less than 2 percent between 1999 and 2000.⁵² Although there were many refinery sales and purchases of FRS refineries during 2001, all were intra-FRS transactions (see Chapter 2 discussion) and had no net effect on total FRS refining capacity.

However, these transactions contributed much of the 48-percent increase in U.S. refining additions to net investment in place for 2001 relative to 2000. Additionally, some companies indicated that they are upgrading their refineries.⁵³ Much of the 86-percent increase in capital expenditures for U.S. marketing was also due to intra-FRS transactions.

Figure 17. Quarterly U.S. Motor Gasoline Stocks, 1995-1999, 2000, and 2001



Source: Energy Information Administration, Petroleum Supply Monthly, DOE/EIA-0109 (Various issues, Washington, DC), Table 51.

Table 14. U.S. Refined Product Margins and Costs per Barrel Sold and Product Sales Volume for FRS Companies, 2000-2001

	2000	2001	Percent Change 2000 - 2001
(Dollars per Barrel)			
Gross Margin	7.06	7.85	11.2
- Marketing Costs	1.37	1.59	15.9
- Energy Costs	1.33	1.37	2.8
- Other Operating Costs	2.13	2.17	1.8
= Net Margin	2.23	2.72	21.7
(Million Barrels)			
Product Sales Volume			
Motor Gasoline	11,743	12,435	5.9
Distillate	6,695	6,958	3.9
Other Products	3,849	4,185	8.7
Total	22,287	23,579	5.8

Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

Table 15. U.S. and Foreign Refining Investment and Operating Items for FRS Companies, 2000-2001

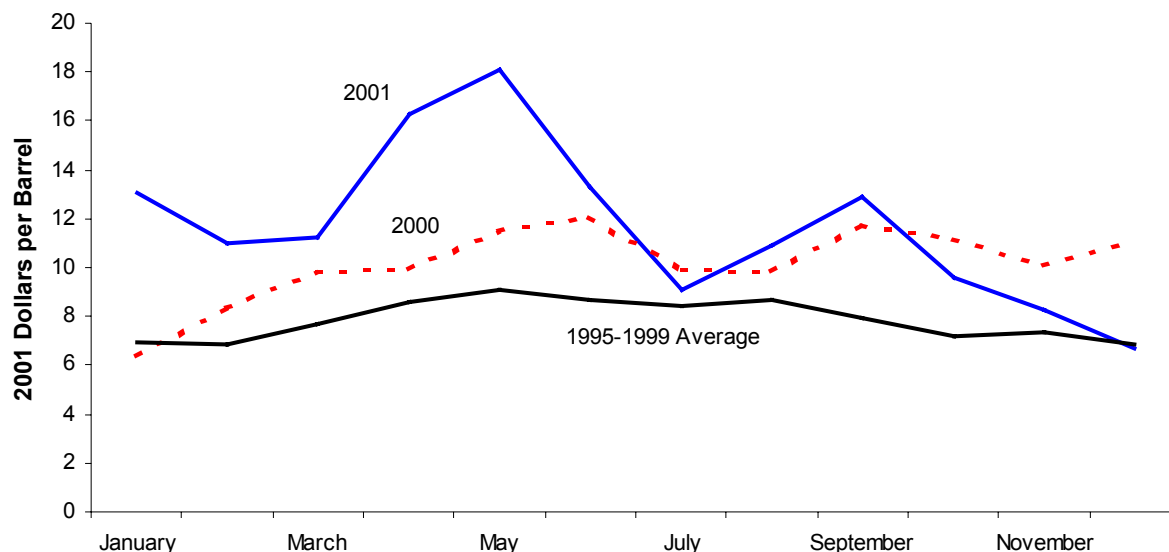
	2000	2001	Percent Change 2000-2001
(Billion Dollars)			
U.S. Refining Additions to Investment in Place	8.2	12.1	47.7
U.S. Marketing Additions to Investment in Place	3.9	7.2	85.7
Foreign Refining/Marketing Additions to Investment in Place	2.4	4.6	91.1
(Thousand Barrels per Day)			
U.S. Refining Capacity	14,378	14,586	1.4
U.S. Refinery Output	14,499	15,022	3.6
Foreign Refining Capacity	5,134	5,448	6.1
Foreign Refinery Output	5,124	5,062	-1.2
(Percent)			
U.S. Refinery Utilization Rate ¹	93.7	95.8	(2)
Foreign Refinery Utilization Rate ¹	89.7	85.2	(2)

¹Refinery utilization rate is calculated by dividing runs to stills at own refineries by the average of the year beginning and year ending crude oil distillation capacity.

²Not meaningful.

Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

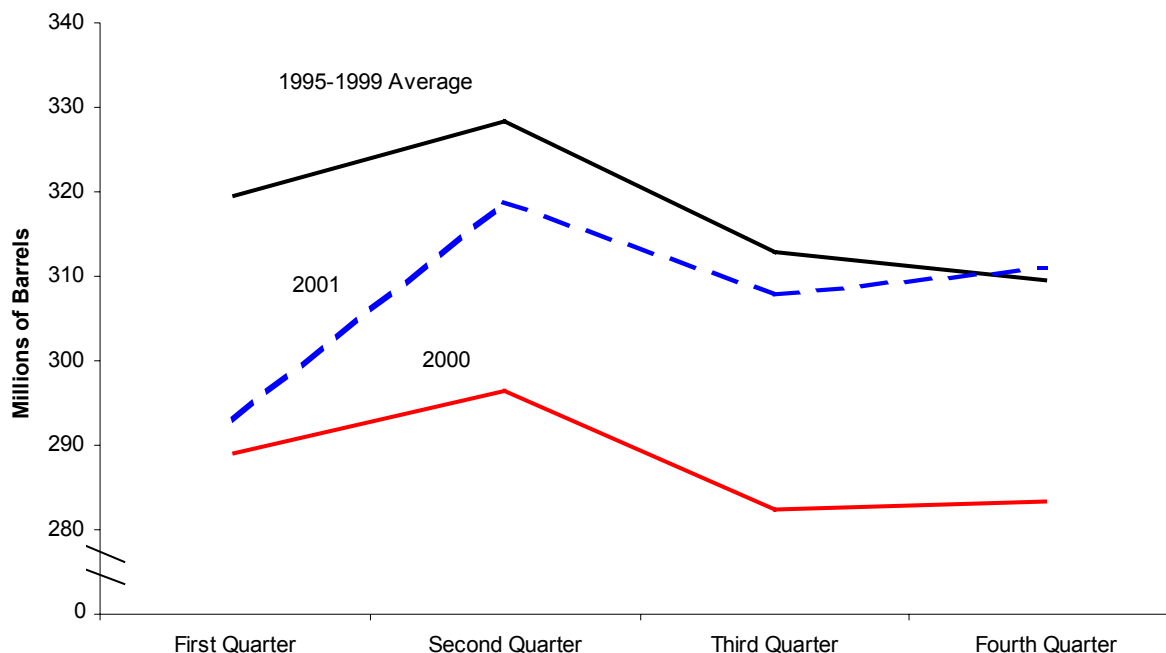
Figure 18. Monthly Gross Refined Product Margin for United States, 1995-1999, 2000, and 2001



Note: The U.S. gross refined product margin is the difference between the composite wholesale product price and the composite refiner acquisition cost of crude oil.

Sources: Energy Information Administration, *Petroleum Marketing Monthly*, DOE/EIA-0380 (April 1995 - March 2002), Table 1, Table 4, and Table 5; and Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0380 (February 1995 - January 2002), Table 3-2b.

Figure 19. Quarterly U.S. Crude Oil Stocks, 1995-1999, 2000, and 2001



Source: Energy Information Administration, Petroleum Supply Monthly, DOE/EIA-0109 (Various issues, Washington, DC), Table 51.

Gross Margin and Operating Costs Rise Despite Stable Energy Costs

Industry-wide gross refining margins in 2001 were generally higher than those of 2000 until the end (i.e., fourth quarter) of the year (Figure 18). The gross margin was elevated by relatively lower stocks of motor gasoline (compared with those of 2000). Domestic crude oil stock levels were higher in 2001 than they were a year ago (and by the end of the year reached the 1995 to 1999 average), which put downward pressure on the price of crude oil, which fell \$5.30/barrel (19 percent) from the 2000 average of \$28.26/barrel (Figure 19).⁵⁴ Although the industry-wide gross margin of 2001 was lower than that of 2000 in the fourth quarter, the average gross margin for 2001 was \$11.59/barrel, a 17-percent increase from the 2000 value of \$9.91/barrel. The FRS gross margin, which includes product purchases and resales of refined products, increased \$0.79 (11 percent) per barrel between 2000 and 2001 (Table 13).

Operating costs increased in 2001 relative to 2000, rising 4 percent, \$0.30 per barrel, following an 8-percent increase between 1999 and 2000 (Table 14). Of the categories of operating costs, energy costs changed the least, essentially keeping pace with inflation.⁵⁵ Companies generally were able to avoid large increases in their energy costs because one of the significant costs, the industry-wide price for natural gas, increased only 3 percent, from \$4.38 per thousand cubic feet to \$4.51 per thousand cubic feet.⁵⁶ Although several companies reported lower energy costs, no particular reasons were provided. However, several companies have undertaken cogeneration projects at several refineries⁵⁷ in the last few years and this may be part of the reason for lower energy costs in 2001.

Acquisitions and Mergers Increase Marketing Costs Despite Continued Cost-Cutting Efforts

Marketing costs, however, increased 16 percent in 2001 relative to 2000 (Table 14). Certainly the mergers of 2001, in which Valero acquired Ultramar Diamond Shamrock, Phillips Petroleum acquired Tosco, and Chevron merged with Texaco to create ChevronTexaco, required the integration of separate marketing networks and led to higher marketing costs. Further, Phillips acquired several Coastal-branded retail outlets and supply contracts for others from El Paso.⁵⁸ Additionally, Amerada Hess acquired outlets in New England and began a joint venture in the southeastern United States.⁵⁹

Attempting to lower marketing costs, the FRS companies continued to relentlessly restructure, refocus, and retrench their motor gasoline marketing operations throughout 2001. They again reduced the number of direct-supplied branded outlets, which fell 2 percent from 55,243 in 2000 to 54,085 in 2001 (Table 16). A net of more than 1,200 company-operated outlets were sold to non-FRS companies during 2001,⁶⁰ which resulted in a 10-percent decline relative to 2000.

Table 16. Motor Gasoline Distribution and Number of Direct-Supplied Branded Outlets for FRS Companies, 2000-2001

	2000	2001	Percent Change 2000-2001
(Million Barrels)			
Third-Party Volume			
Wholesale	2,125.9	1,955.8	-8.0
Retail			
Dealer	1,104.6	1,182.1	7.0
Company-Operated	543.3	545.1	0.3
Total Retail	1,647.9	1,727.3	4.8
Direct	464.9	729.3	56.9
Total Third-Party Volume	4,238.8	4,412.4	4.1
Intersegment Volume	105.4	126.4	20.0
(Number of Direct-Supplied Branded Outlets)			
Dealer Outlets	42,660	42,705	0.1
Company-Operated Outlets	12,583	11,380	-9.6
Total Retail Outlets	55,243	54,085	-2.1
(Thousand Gallons per Month)			
Average Monthly Outlet Volume			
Dealers	90.6	96.9	6.9
Company-Operated	151.1	167.7	10.9
All Direct-Supplied Outlets	104.4	111.8	7.1

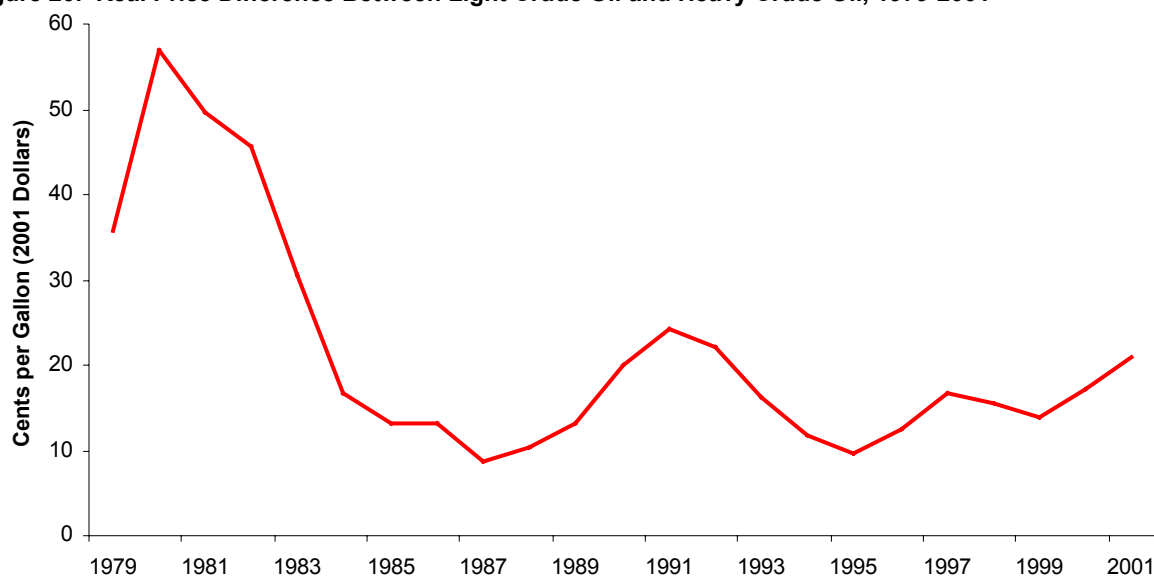
Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

The productivity of the retail outlets retained by the FRS companies increased by 7 percent in 2001 relative to 2000 (Table 16). The productivity of company-operated outlets increased 11 percent from a monthly average of 151,100 gallons per outlet in 2000 to 167,700 gallons in 2001. The productivity of dealer outlets increased from 90,600 gallons per outlet to 96,900 gallons per outlet, also a 7-percent increase.

Sophisticated refineries, such as those owned by the FRS companies,⁶¹ are able to take advantage of price differences between lower quality crude oil and higher quality crude oil. The price differences between heavy and light crude has grown over the last two years (Figure 20), increasing by 24 percent

(from 13.9 to 17.2 cents per gallon) between 1999 and 2000 and by 22 percent (17.2 to 21.0 cents per gallon) between 2000 and 2001. Thus, the FRS refiners were able to lower their raw materials costs, relative to less sophisticated refiners, by taking advantage of these price differences. Additionally, the sophistication of the FRS refineries allows them to produce more light products and fewer heavy products. Consequently, the recent increase in the price difference between light and heavy products (approximated by the price difference between motor gasoline and residual fuel oil) contributed to the recent profitability of the FRS refiners (Figure 21).

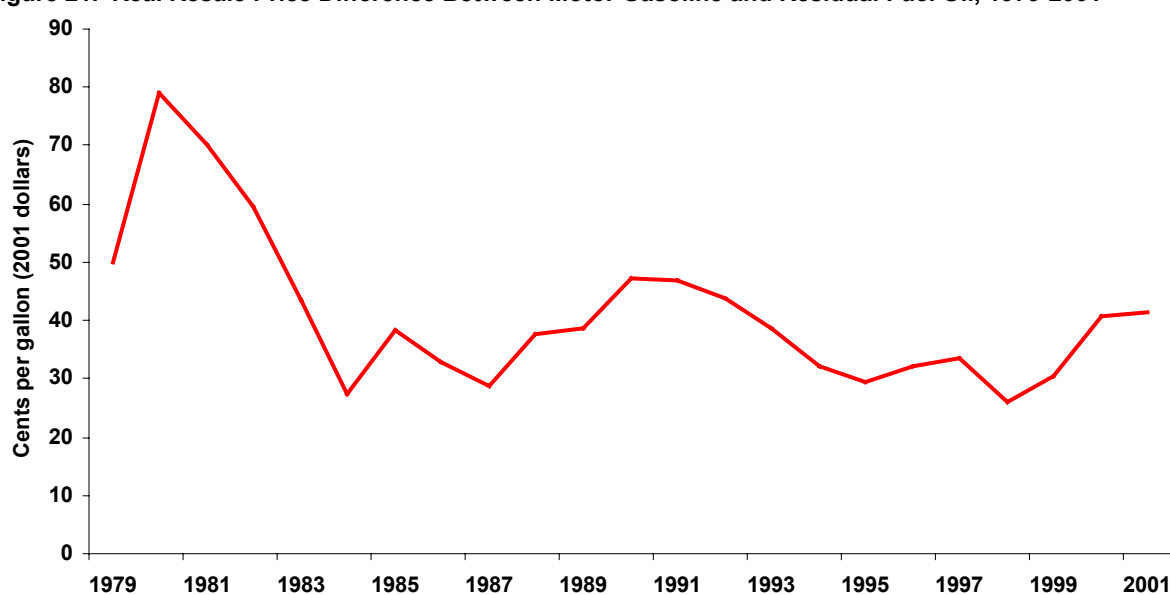
Figure 20. Real Price Difference Between Light Crude Oil and Heavy Crude Oil, 1979-2001



Note: The more expensive light crude oil is defined here as having an API gravity of 40.1 or greater and heavy crude oil is defined as having an API gravity of 20 or less.

Source: Energy Information Administration, *Petroleum Marketing Monthly*, DOE/EIA-0380, Tables 27 and 28.

Figure 21. Real Resale Price Difference Between Motor Gasoline and Residual Fuel Oil, 1979-2001



Source: Energy Information Administration, *Petroleum Marketing Monthly*, DOE/EIA-0380, Table 4.

Planned outages of refineries (e.g., turnarounds) were delayed in response to high refining margins during the first half of 2001, contributing to the slight increase in the domestic refinery utilization rate (Table 15) relative to 2000. Further, the higher utilization rate contributed to an almost 4-percent increase in refinery output in 2001 compared to a year earlier.

Thus, 2001 was the most profitable of a recent run of profitable years for the domestic refining/marketing operations of the FRS companies. In 2000, the reduced operating costs were chiefly responsible for the increased net margin and, by implication, also had much to do with the increased profitability of domestic refining/marketing. However, in 2001, the higher gross margin elevated the net margin. The ability of the FRS companies to capitalize on greater price differences between light and heavy crude oils and light and heavy refined products with their sophisticated refineries played a large role in the increased profitability of FRS domestic refining/marketing profitability in 2001.

Foreign Refining and Marketing

Profitability of Foreign Refining/Marketing Operations Highest Since 1997

Foreign refining/marketing generated \$143 billion in sales revenues in 2001, resulting in net income before unusual items of \$3.1 billion, a 7-percent increase relative to 2000 (Table 12). Sales revenues in 2001 were \$4.6 billion (3 percent) lower than those of 2000, but net income exclusive of unusual items was \$0.2 billion higher, a 6-percent increase, at \$3.2 billion. Profitability was 10 percent, the highest since 1997 (Figure 14).

The FRS companies' foreign refining/marketing earnings are derived from two sources: unconsolidated affiliates and consolidated operations. The corporate parent of an unconsolidated affiliate owns 50 percent, or less, of the affiliate, and does not directly control the affiliate (a joint venture, for example, is usually an unconsolidated affiliate from the perspective of at least one of the partners⁶²). Essentially, the unconsolidated affiliate is more of a property or holding of the parent corporation than it is a company that the parent actually operates. The effect on financial operations of an unconsolidated affiliate can only be seen on the parent corporation's income statement, where the parent company's proportional share of the affiliate's net income is reported. Conversely, a fully consolidated affiliate is directly controlled by the parent corporation (although it could be owned by several companies, with the parent corporation owning more than 50 percent). In addition, all operating and financial information about a fully consolidated affiliate (such as revenues) is reported in the public financial disclosures of the parent corporation.

Unconsolidated/Consolidated Results Approximate Asia-Pacific/Europe Operations

Historically, the operations of the FRS companies' unconsolidated foreign refining/marketing affiliates have been mainly in the Asia-Pacific region. Much of the Asia/Pacific refinery capacity owned by the FRS companies was held by a joint venture between Chevron and Texaco called Caltex. The merger of Chevron and Texaco, which created ChevronTexaco, effectively ended Caltex's existence as a separate company. (See the Highlight "Caltex, 1936-2001" for more information about the Caltex joint venture.)

Caltex, 1936 to 2001

Following the merger of Chevron and Texaco in 2001, Caltex was folded into ChevronTexaco Global Energy, Inc., its international operating entity. The continued use of the Caltex brand name in the Asia-Pacific region is the last remaining vestige of the oldest FRS joint venture. The following narrative recounts a few significant events in the joint venture's history.

The Caltex joint venture between the partners Chevron (Standard Oil of California) and Texaco (Texas Oil Company) began operation in 1936. Caltex was one of the earliest refining/marketing joint ventures, and, until Texaco and Saudi Aramco created the Star Enterprise joint venture in 1988, it was without peer. However, refining/marketing joint ventures eventually became both popular and prevalent in the 1990's. Ashland and USX/Marathon combined their downstream operations to create Marathon Ashland Petroleum, and Shell and Texaco combined their western U.S. operations to create Equilon, and most^a of Shell's non-western operations and Star Enterprise to form Motiva.

Although Caltex has been known as a refining/marketing joint venture, it was not founded as such. Instead, it was a joint venture that combined Chevron's (then commonly referred to as SOCAL, short for Standard Oil of California) oil and gas production operations in Bahrain, Saudi Arabia, and the East Indies and Texaco's Africa and Asia marketing operations. Chevron desired an outlet for the crude oil that it was producing, especially the sour (i.e., high sulfur) crude of Bahrain, while Texaco needed petroleum products that could be sold by its marketing operations.^b Caltex was formally established to "operate in Africa, the Middle East, Asia, Australia, and New Zealand. Chevron's solution was to grant Texaco 50 percent of Chevron's Bahrain and Saudi Arabian concessions in return for receiving 50 percent of Texaco's Far Eastern marketing network."^c This arrangement ameliorated the problems of both companies.

During 1937, Caltex expanded its marketing operations in Australia, Africa, China, India, and parts of Asia. In 1947 Caltex expanded into Europe by adding Texaco's European operations, a move that was reversed 20 years later when Caltex's European interests were transferred back to its parents, Texaco and Chevron. In 1968 Caltex expanded into Korea and by 1988 Caltex had expanded its operations in Australia, Hong Kong, Thailand, and the Philippines and re-entered China by opening an office in Beijing and a marketing outlet. During the 1990's Caltex expanded into India, Sri Lanka, Vietnam, Cambodia, Indonesia, and Lebanon.^d

Caltex is considered to have pioneered production-sharing contracts with a 1960's production-sharing agreement with Indonesia. This contract recognized Caltex as a contractor, rather than a concessionaire. The implication thereby was that the country was sovereign and that Caltex was subordinate to the country. Such formal recognition of the relationship between Indonesia and Caltex created a more politically tenable situation in Indonesia and smoothed the way for subsequent agreements between Indonesia and foreign oil companies.^e

Caltex's existence as a stand-alone company formally ended in 2001 with the merger of the two parent companies, which created ChevronTexaco. At that time, Caltex's assets included two wholly owned and eight partially-owned refineries with a total capacity of 840 thousand barrels per day and approximately 8,650 branded retail outlets in approximately 30 countries. ChevronTexaco continues to use the Caltex brandname although Caltex no longer exists as a stand-alone company.

^aShell's non-western assets that were not included in Motiva were Shell's two petrochemical refineries and its Deer Park, Texas refining joint venture with Petroleos de Mexicanos (PEMEX, the state oil company of Mexico).

^bDaniel Yergin, *The Prize*, Simon and Schuster (New York, 1991), p. 299.

^cNeil H. Jacoby, *Multinational Oil*, Macmillan Publishing Co., Inc. (New York, 1974), p. 36.

^dCaltex Corporation, "About Caltex." Web site: http://www.caltex.com/Caltex.com/about/corp_caltexstory.asp (as of September 26, 2002).

^eDaniel Yergin, *The Prize*, Simon and Schuster (New York, 1991), p. 652.

About 69 percent of the refinery capacity of unconsolidated affiliates in 2001 was in the Asia-Pacific region, a 2-percentage point increase since 2000 (Table 17). Although the change was small, numerous marginal changes in refinery capacity, many of which were declines, underlay the summary statistics. Further, Caltex's consolidation by ChevronTexaco shifted 72,000 barrels of capacity from unconsolidated operations to consolidated affiliates.⁶³ All the rest of Caltex's refinery capacity was unconsolidated from Caltex's perspective (and represented the sum of their shares of the total refinery capacity of all refineries in which Caltex had ownership) and, from the perspective of Chevron and Texaco (now ChevronTexaco), Caltex was unconsolidated. Even though Caltex is now consolidated from the perspective of ChevronTexaco, almost all of the Caltex's refinery capacity (with the exception of a refinery in the Philippines) remains unconsolidated from ChevronTexaco's perspective because ChevronTexaco's ownership of these refineries remains less than 100 percent. Thus, although the merger of Chevron and Texaco, which created ChevronTexaco, resulted in their Caltex joint venture being consolidated, it had surprisingly little effect on the relative refining capacity that is consolidated versus that which is unconsolidated.⁶⁴

Table 17. Regional Distribution of Foreign Refinery Capacity for FRS Companies, 2000-2001
(Percent)

	Consolidated Operations		Unconsolidated Affiliates	
	2000	2001	2000	2001
Europe	49.4	51.0	20.5	18.0
Asia	24.0	25.0	66.8	68.7
Latin America	10.0	11.6	0.6	0.5
Canada	13.9	9.7	0.0	0.0
Other	2.8	2.7	12.0	12.7
Grand Total	100.0	100.0	100.0	100.0

Note: The region denoted as "Other" includes Africa and the Middle East.

Sources: Company Annual Reports and filings of U.S. Securities and Exchange Commission Form 10-K.

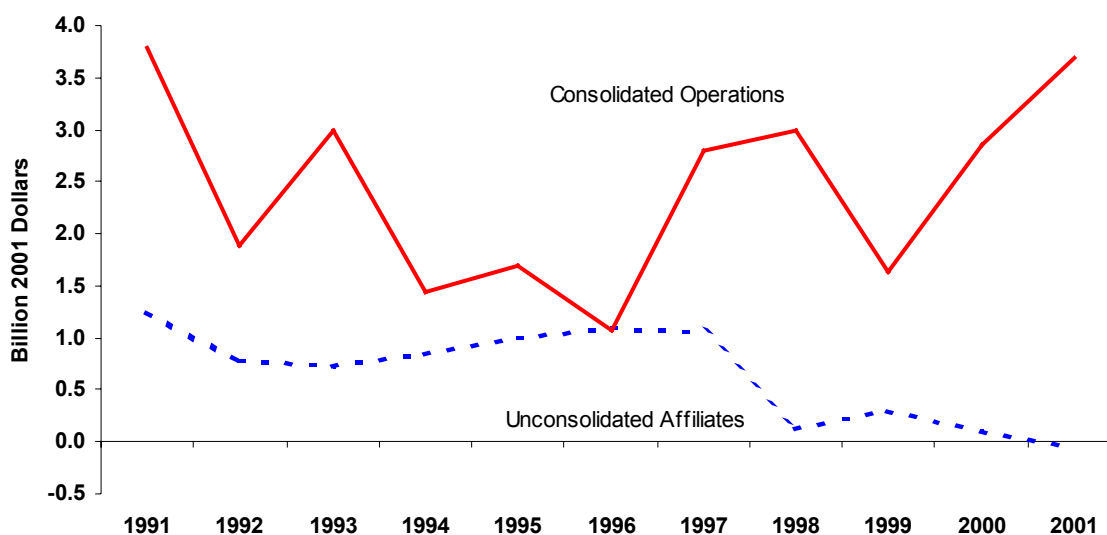
The FRS companies' consolidated foreign/marketing operations are mainly located in Europe. In 2001, 51 percent of consolidated refinery capacity was located in Europe, a 2-percentage point increase since 2000. The main sources of the change were marginal declines in the reported capacities of several refineries, which slightly shifted the proportions (Table 17). Further, the net effect of two transactions further reduced consolidated capacity. Phillips Petroleum sold its ownership in the 117,000 barrels per day Teesside, UK refinery at the end of 2000,⁶⁵ but acquired Tosco, which itself had earlier acquired Ireland's 70,000 barrels per day Whitegate refinery.⁶⁶

Consolidated Operations Dwarf Unconsolidated Affiliates As Net Income Contributor

The contribution to net income from the FRS companies' unconsolidated affiliates has been significantly lower than earnings from consolidated operations since 1997 (Figure 22). Between 1991 and 1997, the ratio of net income from unconsolidated affiliates to the net income from consolidated operations averaged 43 percent, ranging between a high of 103 percent and a low of 24 percent. Since 1997, the

ratio has averaged 7 percent, ranging between a high of 18 percent and a low of 4 percent, exclusive of the small loss earned in 2001. The change in the relationship between earnings from consolidated versus those of unconsolidated foreign refining/marketing operations provides some indication of the ongoing economic troubles of Asia-Pacific.

Figure 22. Foreign Refining/Marketing Net Income from Consolidated Operations and Unconsolidated Affiliates of FRS Companies, 1991-2001



Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

Generally Negative Results Characterize Asia-Pacific Markets

During 2001, the FRS companies' unconsolidated affiliates generated a loss of \$4 million, which was a \$107-million reduction from 2000's level of positive income of \$103 million. Results for unconsolidated affiliates largely reflect conditions in the Asia-Pacific region (Table 17). Refining margins for Asia-Pacific (represented by the Singapore/Dubai refining margin) were \$0.78 per barrel lower than a year earlier with the greatest reductions during the first and fourth quarters of 2001 (Figure 23). The results were mixed, with half of the companies reporting an increase in earnings, or a reduction in losses, and half reporting a decrease in earnings, or an increase in losses. For example, Conoco reported it had 6 percent of the Thailand motor gasoline market and that its lubricants sales are growing in Asia Pacific.⁶⁷ Similarly, ChevronTexaco noted that margins "improved in most of the Asia ... operating areas."⁶⁸ Alternatively, Exxon Mobil noted that Asia-Pacific refining margins were lower "... than already poor 2000 margins. Persistent weak demand continued to hamper margin recovery."⁶⁹

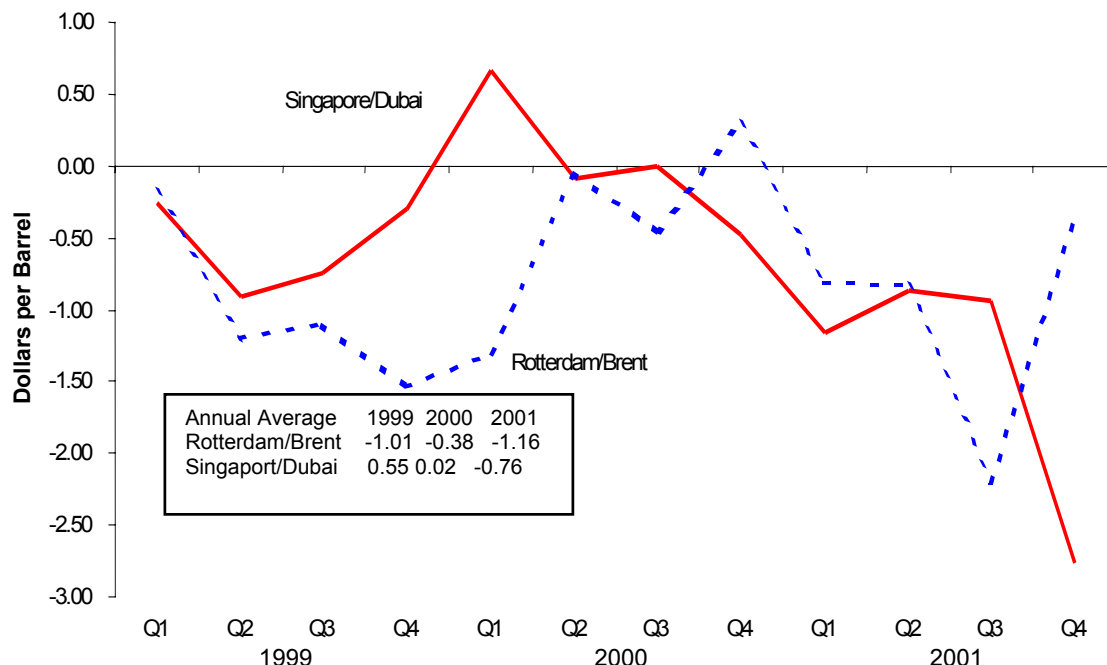
However, despite the lingering economic problems following the Asian financial crisis, the Asia-Pacific region has experienced the highest growth rate in the consumption of petroleum products of any region in the world since 1996 (Figure 24) at 20 percent for the five-year period. Consequently, selective investment,⁷⁰ such as cogeneration facilities in refineries,⁷¹ continues despite the current low earnings.

Earnings in Europe Increase Despite Falling Margins

Net income from the FRS companies' consolidated operations (bottom line net income from foreign refining/marketing less income from unconsolidated affiliates) was 7 percent higher in 2001 than a year

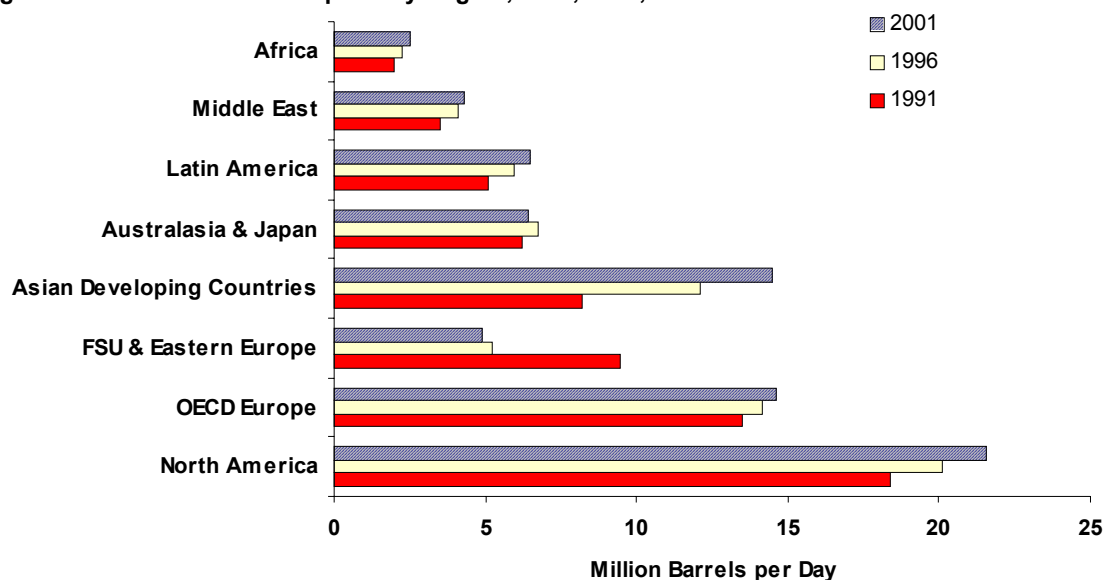
earlier, reaching \$3.1 billion. This result occurred despite Europe having the lowest five-year growth rate of petroleum consumption since 1996 (Figure 24) at 3 percent.

Figure 23. Foreign Refining Margins, 1999-2001



Sources: Energy Intelligence Group, *Oil Market Intelligence* 1999: January 2000 and July 1999, p. 12; 2000: January 2001 and July 2000, p. 12; and 2001: January 2002 and July 2001, p. 12.

Figure 24. Petroleum Consumption by Region, 1991, 1996, and 2001



Source: BP plc, *BP Statistical Review of World Energy* (June 2002). p. 9.

European refining margins (represented by the Rotterdam/Brent refining margin) were low during the first half of 2001, fell substantially during the third quarter, and recovered to a yearly high in the fourth quarter (Figure 23). However, the overall result was that European refining margins⁷² were \$0.78 per barrel lower in 2001 than in 2000, exactly the same value in the Asia/Pacific markets. The financial results of the FRS companies reporting consolidated refining/marketing operations were generally good, with many of the companies reporting higher net income than in 2000, citing higher margins⁷³ and sales.⁷⁴ Only a few companies reported lower earnings than in 2000 (and none reported losses), citing lower margins and sales.⁷⁵ Additionally, Conoco's wholly-owned Humber, United Kingdom refinery was shut down for 10 weeks following an explosion.⁷⁶

Foreign Marketing Operations Being Refocused

The FRS companies continued to refocus their foreign marketing operations during 2001. For example, Conoco sold 175 outlets in the United Kingdom.⁷⁷ In contrast, Exxon Mobil expanded marketing operations, opening a total of more than 250 new outlets in several different countries worldwide,⁷⁸ while standardizing the image of its worldwide outlets.⁷⁹ Similarly, ChevronTexaco acquired an independent fuel marketer with more than 100 outlets in New Zealand⁸⁰ and also refurbished outlets in Belgium, Luxembourg, the Netherlands, and the United Kingdom.⁸¹

Exxon Mobil introduced continuously open, unattended outlets (called Esso Express) in France and Belgium in 2001⁸² and expanded their alliances with European grocery chains to include a Dutch grocer in addition to the UK grocer announced in 2000. Further, Exxon Mobil has opened grocery co-branded outlets⁸³ in the United Kingdom and Thailand.⁸⁴

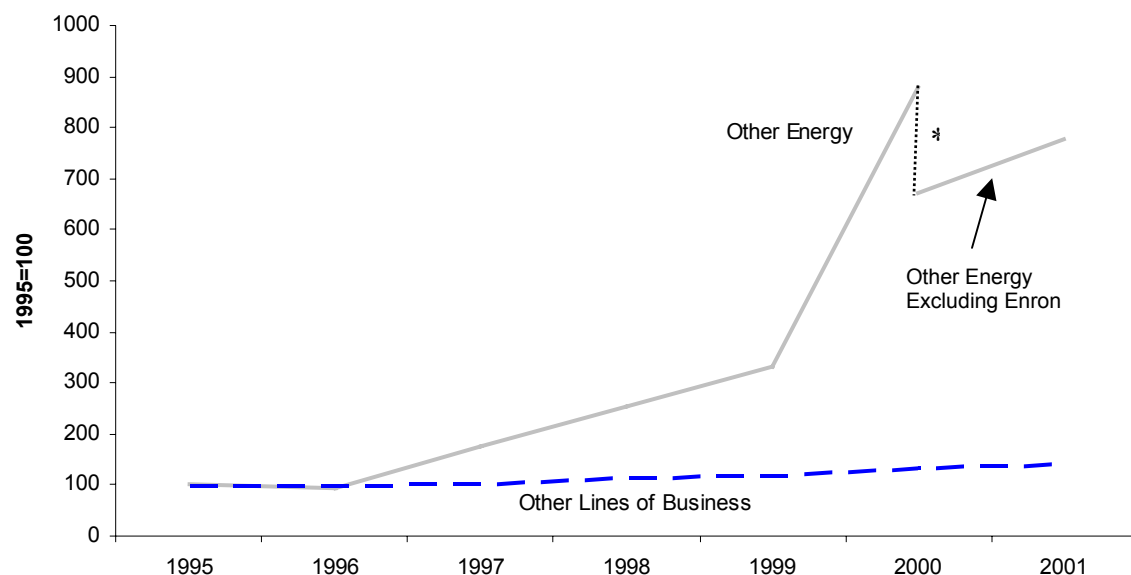
Other Energy

The FRS “other energy” line of business consists of energy operations other than the production of oil, natural gas, or coal. This includes electric power production and supply, transportation of power, energy trading operations, energy management services, and nonconventional energy production. Whether measured by asset growth or revenues, the other energy line of business has grown much faster in recent years than all other lines of business of FRS companies (Figure 25).

Revenue and Income, Sans Enron, Continue to Grow

There has been tremendous growth in revenue from the FRS companies’ other energy line of business. Between 1995 and 2000, the FRS companies’ other energy revenues grew at an annual rate of 127 percent. In 2001, excluding Enron which did not report to the FRS in that year, revenues were up 96 percent (Table 18). Much of that growth has been driven by the electric power businesses and electricity and natural gas trading activities. Prominent among these companies in revenue growth in 2001 were the three FRS companies that were also biggest in terms of other energy revenue base: El Paso, BP, and Dominion. Blurring this picture, possibly, are revelations that some reported trading activity in the industry consisted of transactions that “wash” or offset themselves, designed specifically to boost reported revenues despite not materially affecting any other business attributes, such as income. This type of trading activity (“wash” trades) was admittedly occurring in Enron, a company that eventually failed. Several other companies admitted to “wash trades,” such as CMS and Dynegy. Williams was accused but the company denied it. (For further information on Enron, see the Highlight entitled “What Factors Undermined Enron’s Success In Energy Trading?”)

Figure 25. Net Investment in Place in Other Energy and All Other Businesses for FRS Companies, 1995-2001
(1995=100)



*Because of Enron's absence from the Financial Reporting System in 2001, the Other Energy line of business data are presented with and without Enron's data for year 2000.

Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

Table 18. Income Components for Other Energy for FRS Companies, With and Without Enron, 2000-2001

Income Components	2000	ex-Enron 2000	2001	Percent Change ex-Enron 2000-2001
(Million Dollars)				
Operating Revenue	84,987	42,807	83,811	95.8
Operating Expenses	81,948	40,884	81,678	99.8
Operating Income	3,039	1,923	2,133	10.9
Equity Income	753	651	902	38.6
Net Income	2,741	1,904	1,993	4.7
unusual items	-20	-20	-7	--
Net Income excluding unusual items	2,761	1,924	2,000	4.0

Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

What Factors Undermined Enron's Success In Energy Trading?

Enron Corp. was created in July 1985 by the merger of Houston Natural Gas Corporation and InterNorth, Inc., the parent company of Northern Natural Gas Company, a natural gas company based in Omaha, Nebraska. Originally a natural gas pipeline company which grew to own approximately 37,000 miles of pipeline, Enron became more widely known as it remade itself into a high-tech company, pioneering the trading of natural gas and later electricity and financial instruments (known as derivatives). Enron's derivatives were primarily associated with their energy business lines (i.e., natural gas and electricity), and risk-related variables (e.g., weather) that were relevant to these businesses. All this collapsed as Enron filed for protection from creditors under a Chapter 11 reorganization on December 2, 2001, the biggest corporate bankruptcy ever up to that time.

Where did Enron go wrong?

First, Enron had adopted a strategy of becoming a major force in the businesses it operated in while minimizing the ownership of hard assets in those businesses – the Enron “asset-light” approach. Rather than own, it employed contracts to control the facilities involved in its operations.

Second, much of Enron's growth was fueled by borrowing, which Enron made opaque to outside parties through the use of various financial techniques and instruments, such as the often-mentioned “special purpose entities,” an accounting technique originally designed to leverage risk for the banking industry.

In addition, much of Enron's profits came from trading activities. To be successful in this business, a trading company must have sufficient net worth and cash liquidity -- or effectively maintain the image of such -- so that trading partners continue to be willing to make deals without fear of much counter-party risk (the inability of a trading partner to make good on its obligation).

Despite being heavily in debt, Enron made several major investments (including some in non-core businesses), such as building a major power plant in India, and laying thousands of miles of fiber optic lines. These investments turned sour and lost large sums of money (such as when telecommunications demand failed to materialize as expected and huge fiber optic overcapacity resulted), exacerbating and making more apparent the extent of the company's financial troubles.

Together, these factors helped lead to the unraveling of Enron. Once it became clear that many of these large investments were turning sour, suspicions arose that Enron might be on substantially less sound financial footing than was previously assumed, and traders began shunning Enron. With trading evaporated as a profit base, the financial drain on Enron accelerated, and the company collapsed.

These same three companies reporting the highest revenue growth also more than accounted for the modest 4 percent growth in net income, excluding unusual items. Other companies on balance reported lower income. Williams pointed to the impact of the Enron experience: “Events in 2001 significantly impacted the risk environment all businesses face and raised a level of uncertainty in the capital markets ... If Williams' credit ratings were to decline below investment grade, its ability to participate in the Energy Marketing and Trading business could be significantly limited.”⁸⁵ Shell had \$78 million of losses in its Other Businesses segment, “mainly due to costs associated with the exit of several retail

power markets, and increases in reserves.”⁸⁶ Meanwhile, ChevronTexaco’s decline in income in this area was due to special items and merger effects; excluding these items, income was essentially unchanged.⁸⁷

Growth in equity income (income from equity ownership in other companies) was led by El Paso and ChevronTexaco. For El Paso, some of the increase resulted from higher earnings from an unconsolidated affiliate called Chaparral which owns and operates electric power facilities, rising from a loss of \$5 million in 2000 to earnings of \$75 million in 2001.⁸⁸ ChevronTexaco’s equity ownership in Dynegy Inc. (Dynegy) accounted for \$61 million of this increase, increasing from \$127 million to \$188 million, both from a greater ownership share in Dynegy and higher Dynegy income in 2001.⁸⁹

Nonconventional Energy: Tar Sands and Geothermal Stand Out

The FRS “other energy” line of business was originally conceived primarily for nonconventional energy investments, which include renewable resources, such as wind, solar, and geothermal energy, and hydrocarbons from tar sands, oil shale, coal gasification and liquefaction, among other sources. However, nonconventional energy is no longer a primary target of investment for the FRS companies. Although it was the lion’s share of other energy until the mid-1990’s, the FRS companies’ forays into nonconventional energy were generally unprofitable, and most FRS companies started to scale back their investments in nonconventional energy during the 1980’s.

Nonetheless, two nonconventional energy projects stand out: Canadian tar sands by Exxon Mobil and geothermal energy in Southeast Asia by Unocal. Exxon Mobil has been extracting oil from Canadian tar sands since the 1970’s. The company reports a year-end 2001 total of 821 million barrels of Canadian tar sand reserves, compared to its 11,491 million barrels of worldwide (non-tar sand) crude oil and natural gas liquids reserves.⁹⁰

The 2001 Canadian tar sands reserve level represents a 35-percent increase over the 610 million barrels of those reserves in 2000. Gross synthetic crude oil produced from those tar sands was 80 million barrels in 2001, up from 73 million barrels in 2000, though the bottom-line impact of this production increase was more than offset by the 19-percent decrease in crude oil prices from 2000 to 2001.⁹¹

Unocal has over 35 years experience in geothermal energy. It operates major geothermal fields producing steam for electricity at Tiwi and Mak-Ban in the Philippines, and Gunung Salak and Wayang Windu in Indonesia. These four projects supply steam for a total of 1,200 megawatts of generating capacity.⁹² Unocal’s total 2001 geothermal energy production averaged 14 million kilowatt-hours, the equivalent of 22,000 barrels of oil per day, down from 25,000 barrels per day in 2000. Its net proved geothermal reserves at year-end 2001 were the equivalent of 162 million barrels of oil, compared to 170 million barrels in 2000. Unocal continues to be active in geothermal energy: in 2001 the company purchased 50-percent ownership of a 110-megawatt power plant and related steam field in the Wayang Windu area of West Java, Indonesia.⁹³

Unocal’s Geothermal and Power Operations business segment after-tax earnings were \$11 million in 2001, down \$13 million from 2000. The decline was primarily due to Unocal’s having to make higher provisions for past-due receivables related to the Gunung Salak project.⁹⁴

Endnotes

-
- ³⁷ Exxon Mobil Corporation, 2001 *Financial and Operating Review*, p. 34.
- ³⁸ BP America, the U.S. subsidiary of BP plc of the United Kingdom, is the FRS respondent.
- ³⁹ BP plc, 2001 Report to the Securities and Exchange Commission on Form 20-F, p. 28.
- ⁴⁰ Occidental Petroleum, 2001 *Annual Report*, p. 4.
- ⁴¹ Exxon Mobil Corporation, 2001 *Financial and Operating Review*, pp. 52-53.
- ⁴² Exxon Mobil Corporation, "The frontier in exploration runs deep, very deep," *the Lamp*, Spring 2000.
- ⁴³ BP plc, 2001 Report to the Securities and Exchange Commission on Form 20-F, p. 32; Amoco, 1997 Report to the Securities and Exchange Commission on Form 10-K.
- ⁴⁴ Return on investment is net income divided by net investment in place, which is net property, plant, and equipment plus year-end balance for investments and advances to unconsolidated affiliates.
- ⁴⁵ The all-time high was recorded in 1988 and was 14.7 percent. The level achieved in 2001 was 14.5 percent.
- ⁴⁶ The net margin and return on investment have a correlation coefficient of 92 percent. See Energy Information Administration, *The Impact of Environmental Compliance Costs on U.S. Refining Profitability* (Washington, DC, October 1997), Figure 5. Web address: http://www.eia.doe.gov/emeu/perfpro/ref_pi/fig5.gif (as of October 30, 2002).
- ⁴⁷ The net margin excludes peripheral activities such as non-petroleum product sales at convenience stores.
- ⁴⁸ The increase in other revenue, which was about 7 percent of domestic refining/marketing revenue in 2001 (5 percent in 2000), was chiefly driven by ChevronTexaco, probably from the earnings received from Texaco's share of Equilon and Motiva.
- ⁴⁹ Unusual items are revenues and costs associated with activities not a part of the on-going activities of the company, such as write-downs of asset values.
- ⁵⁰ Percent changes in Gross Domestic Product (after adjusting for general price changes) (GDP) measure economic growth. See Energy Information Administration, *Monthly Energy Review* August 2002, DOE/EIA-0035(2002/08) (Washington, DC, August 2002), Table 1.9.
- ⁵¹ Energy Information Administration, *Short-Term Energy Outlook*, (Washington, DC, December 2001 and October 2002), Table 1.
- ⁵² Energy Information Administration, *Performance Profiles of Major Energy Producers 2000*, DOE/EIA-0206(2000) (Washington, DC, January 2002), Table 16. Web address: <http://www.eia.doe.gov/emeu/perfpro/table16.html> (as of October 29, 2002).
- ⁵³ For example, Exxon Mobil (2001 *Annual Report*, p. 18) and Phillips (press release, June 20, 2001).
- ⁵⁴ Energy Information Administration, *Annual Energy Review 2001*, DOE/EIA-0384(2001) (Washington, DC, October 29, 2002), Table 5.19. Web address: <http://www.eia.doe.gov/emeu/aer/petro.html> (as of October 30, 2002).
- ⁵⁵ Based on the implicit GDP deflator, inflation during 2001 was 2.4 percent. See U.S. Department of Commerce, Bureau of Economic Analysis, <http://www.bea.doc.gov/bea/dn/gdplev.xls> (as of November 5, 2002).
- ⁵⁶ Energy Information Administration, *Monthly Energy Review August 2002*, DOE/EIA-0035(2002/08) (Washington, DC, August 2002), Table 9.11.
- ⁵⁷ See Energy Information Administration, *Performance Profiles of Major Energy Producers 1999*, DOE/EIA-0206(99) (Washington, DC, January 2001), p. 39 (Web address: <http://www.eia.doe.gov/>).
- ⁵⁸ Phillips Petroleum, "Phillips Petroleum to Acquire Coastal's Midcontinent Gasoline Marketing Assets" (December 12, 2000).
- ⁵⁹ Amerada Hess, press release (January 29, 2001), and 2001 *Annual Report*, p. 22 and "Amerada Hess to Explore Joint Venture with North Carolina Retail Marketer," press release (October 10, 2000).
- ⁶⁰ BP America, El Paso (Coastal-branded outlets), Exxon Mobil, Marathon, Phillips/Tosco, Williams Companies (Mapco-branded) contributed almost all of the divested outlets.
- ⁶¹ Energy Information Administration, *Performance Profiles of Major Energy Producers 1997*, DOE/EIA-0206(97) (Washington, DC, January 1999), page 44. Web address: <http://tonto.eia.doe.gov/FTP/ROOT/financial/020697.pdf> (as of October 31, 2002).
- ⁶² The Caltex joint venture was an unconsolidated affiliate for both of its parents, Chevron and Texaco.
- ⁶³ ChevronTexaco Corporation, *Statistical Supplement to the 2001 Annual Report*, p. 42; and "Caltex Group of Companies Combined Financial Statements," p. 4 in Texaco, Inc., 2000 Securities and Exchange Commission Form 10K.
- ⁶⁴ What is at issue is that all but one of the Caltex refineries were unconsolidated (i.e., only partially owned by Caltex), so only the ownership of this single refinery became consolidated into the parent ChevronTexaco, along with residual shares of the other Caltex refineries that Caltex partially owned.

-
- ⁶⁵Phillips Petroleum Company, *2000 Annual Report*, p. 45.
- ⁶⁶See, Tosco Corporation, *2000 Annual Report*, p. 9; and "Tosco to Pay \$100 Million for Irish State Oil Refinery," *Financial Times* (May 28, 2001).
- ⁶⁷Conoco, Inc., *2001 Annual Report*, p. 16.
- ⁶⁸ChevronTexaco Corporation, *2001 Annual Report*, p. 31.
- ⁶⁹Exxon Mobil Corporation, *Statistical Supplement to the 2001 Annual Report*, p. 65. This marked the fourth-consecutive year that Exxon Mobil Corporation complained of low Asia-Pacific margins.
- ⁷⁰Conoco increased its ownership of the Melaka refinery in Malaysia, see Conoco Inc., press release (February 27, 2001).
- ⁷¹Exxon Mobil Corporation, *2001 Annual Report*, p. 18.
- ⁷² These refining margins are included to indicate relative, not absolute, changes. These margins represent markets in which the FRS companies operate, but are not margins of the FRS companies.
- ⁷³Exxon Mobil Corporation, *Statistical Supplement to the 2001 Annual Report*, p. 65.
- ⁷⁴Texaco Inc., *2000 Annual Report*, p. 29.
- ⁷⁵ChevronTexaco Corporation, *2001 Annual Report*, pp. 31 and 35.
- ⁷⁶Conoco, Inc., *2001 Annual Report*, p. 17.
- ⁷⁷Conoco, Inc., press release (December 4, 2001).
- ⁷⁸Exxon Mobil Corporation, *2001 Annual Report*, p. 18.
- ⁷⁹Exxon Mobil Corporation, *2001 Annual Report*, p. 19.
- ⁸⁰ChevronTexaco Corporation, *Statistical Supplement to the 2001 Annual Report*, p. 43.
- ⁸¹ChevronTexaco Corporation, *Statistical Supplement to the 2001 Annual Report*, p. 46.
- ⁸²Exxon Mobil Corporation, *2001 Annual Report*, p. 20.
- ⁸³A co-branded outlet is a motor gasoline retail outlet that displays two brandnames, one is a motor gasoline brandname, and the other is a brandname in another industry, often the fast food industry in the United States. Outside the United States the other industry often is the grocery industry. In this particular instance the co-branded outlets are effectively grocery stores with a motor gasoline outlet located somewhere on the same property. Additional discussion of co-branded, or multi-format outlets can be found in Energy Information Administration, *Performance Profiles of Major Energy Producers 1996*, DOE/EIA-0206(96) (Washington, DC, January 1998), p. 51 (web address: <http://tonto.eia.doe.gov/FTP/ROOT/financial/020696.pdf>) and *Performance Profiles of Major Energy Producers 1995*, DOE/EIA-0206(95) (Washington, DC, January 1997), p. 44 (web address: <http://tonto.eia.doe.gov/FTP/ROOT/financial/020695.pdf>).
- ⁸⁴Exxon Mobil Corporation, *2001 Annual Report*, p. 19.
- ⁸⁵The Williams Companies, Inc. 2001 Securities and Exchange Commission Form 10-K, pp. 29-30.
- ⁸⁶Shell Oil Company, *2001 Financial Review*, p. 9.
- ⁸⁷ChevronTexaco Corporation, *2001 Supplement to the Annual Report*, p.4.
- ⁸⁸El Paso Corporation, 2001 Securities and Exchange Commission Form 10-K, pp. 36, 117.
- ⁸⁹ChevronTexaco Corporation, 2001 Securities and Exchange Commission Form 10-K, p. FS-32.
- ⁹⁰Exxon Mobil Corporation, *2001 Financial and Operating Review*, p.36.
- ⁹¹Exxon Mobil Corporation, *2001 Financial and Operating Review*, p.37.
- ⁹²Unocal Corporation, 2001 Securities and Exchange Commission Form 10-K, p.18.
- ⁹³Unocal Corporation, 2001 Securities and Exchange Commission Form 10-K, p.20.
- ⁹⁴Unocal Corporation, 2001 Securities and Exchange Commission Form 10-K, pp. 34, 39.